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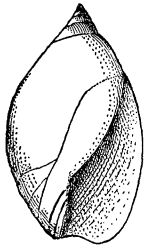
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## ABORIGINAL SHELL MONEY.

BY ROBERT E. C. STEARNS.

IN several articles heretofore published,<sup>1</sup> I have written on the use of various species of shells for the purposes of money by the aborigines of North America, and have also briefly referred to the use of the same class of material for similar purposes in Africa and India, and the antiquity of shell money in the latter country.

Since the date of my last paper additional data have been acquired, which are worthy of note as they relate to certain West American species of mollusks not before enumerated, the shells of which have been and to some extent are still used for money by some of the Indian tribes in California.



(FIG. 62.) OLIVELLA BIPLI-CATA SBY.

The discovery of a species of *Olivella* (*O. biplicata* Sby.) in ancient graves on San Miguel Island (one of a cluster of islands thirty miles westerly) off the southerly coast of this State was referred to in a previous paper. I have since examined specimens of the same species, found by Mr. C. D. Voy in a burial mound near Vallejo, in Solano County, in the year 1872, now in the museum of the University of California, which also contains much rare and interesting prehistoric material collected by the same person in various parts of the State. Of this species about two hundred specimens were obtained from the Vallejo mound, as well as human remains and numerous aboriginal relics, such as stone pipes, bone whistles, and arrowheads, also another form of shell money and ornament described further on.

In all of the *Olivellas* from the Vallejo mound, the upper part of the spire or the apex of each shell has been ground off in the same manner as in the San Miguel Island specimens,<sup>2</sup> and it is presumed that they were formerly strung and worn as a necklace, an ornament for which these shells are still used by some of the interior Indians of Central California, as I have been informed by Mr. Stephen Powers, a most excellent authority. He says that this form is now used for personal adornment by the Bear River Indians, and is by them called "colcol." Referring to the shells he writes, "They are strung double, that is, two strings of them

<sup>1</sup> American Naturalist, March, 1869; Overland Monthly, April, 1873; Proceedings of the California Academy of Sciences, July, 1873.

<sup>2</sup> Collected by Mr. W. G. W. Harford.

are tied together between each two shells, so that the shells are mouth to mouth. But even this double string is lightly esteemed, being worth only one dollar a yard. It is little used for money, being rarely seen at all, and is worn chiefly by the women in dances as a cheap jewelry."

The specimens kindly sent to me by Mr. Powers are of the white variety, which are much less abundant than those of the usual bluish tinge; neither are these nor any of the grave specimens above a medium size, for this species frequently attains a length of an inch and a quarter, as may be seen in Figure 62. The Vallejo mound specimens average only half an inch, which fact suggests that the smaller size may have been more highly valued.

It will be observed that the Olivellas, or colcol, have been found in ancient graves on San Miguel Island associated with human remains and prehistoric implements, also by Mr. Voy in Solano County, and Mr. Yates in a recent article reports their occurrence in the mounds of Contra Costa and Alameda counties.

By reference to a map of California it will be seen that these last localities are widely separated from the first named, and it implies not only the general use of this species of shell by the maritime tribes, but also a line of intercourse and a system of traffic between the coast tribes and those of the interior, as suggested in a previous paper, and through which the colcol finally came to be used by the Indians of the central part of the State.

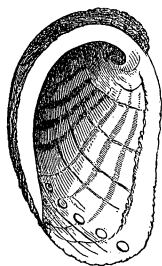
In my first paper,<sup>1</sup> alluding to the use of *Saxidomus gracilis*, a common bivalve on the coast of Sonoma County, I expressed surprise that the equally common and far more beautiful shells of *Haliotis rufescens* had not attracted the attention of the aborigines, and been utilized by them for money and personal decoration. It will be seen, however, that the beauty of these has not escaped the eye of the savage, but that they have been used both for money and for personal decoration, and been fashioned into a variety of shapes for the latter purpose, the prototypes of the "abalone jewelry" so popular with the "pale-faces" of to-day.

From the Vallejo mound Mr. Voy obtained various pieces of *Haliotis*, or abalone, as the Californians call it, which is the *aulon* or *aulone* of the Spanish, and the *uhllo* of the Indians. In reference to the Indian name Mr. Powers writes: "Your conjecture



<sup>1</sup> American Naturalist, March, 1869.

that the word *uhllo* is corrupted from the Spanish *aulon* is probable, although the Indians accent the first syllable, giving it a sound difficult for us to imitate, somewhere between *uh* and the German *ö*."



(FIG. 64.) HALIOTIS  
OR ABALONE.

The accompanying illustrations represent the specimens taken from the Vallejo mound in the year 1872, with which, as before stated, were found human remains and numerous aboriginal relics. They form a part of the Voy collection presented to the University of California by Mr. D. O. Mills, of San Francisco.

These ornaments and this money, if we may consider the circular pieces as the latter, are all made from the same species of *Haliotis* (*H. rufescens* Swainson), the common red-backed abalone of the coast, which has a range of nearly the entire shore line of the State; and a large species which sometimes attains a length of eleven inches.

In Figure 2 of Plate II. we have an approximately circular disk; Figure 1 in the same plate may have been nearly the shape of 2, and have become partially disintegrated and scaled or flaked off, since it was buried, through oxidation and decay. The dark patches on these figures represent the red exterior of the shell from which they were made, and which still remains on the specimens. Figure 3 is well worked out, a nearly perfect circle with the edges neatly serrated or toothed, as if done with a sharp piece of obsidian, while Figure 4, though without apparent design, has been rubbed or rounded so as to make the edges smooth, as have also the pieces figured in 1 and 2, and the holes have been carefully perforated. Figure 4 shows the mark where a hole was started and not completed, probably from its being too near the edge.

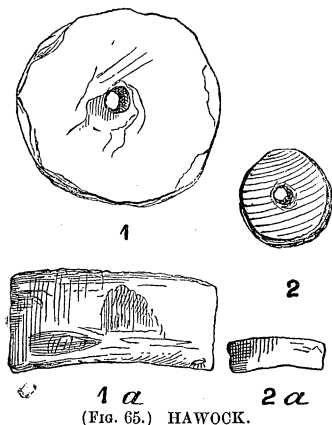
Over a dozen of these disk-shaped pieces, including those figured, were found by Mr. Voy, and Mr. Yates also records approximately similar forms of smaller size, though he does not state the species of *Haliotis* from which his specimens were made. Mr. Henry Edwards, the entomologist, has also obtained this abalone money from the kitchen-middens of Marin County, near Sausalito.

Mr. Powers, referring to the use of *Haliotis*, says, "The *uhllo* pieces are of a uniform size on the same string; they do not mix them. The dollar pieces (Plate II., Figure 5) are generally about one and one quarter inches long and an inch wide; the smaller about as long but narrower; . . . a couple of fragments

I picked up in an old Indian camp (Plate II., Figures 6 and 7) are worth twenty-five cents each. The Indians are very ingenious and economical in working up the aulones: wherever there is a broad, flat space they take out a dollar piece; where the curve is sharper, smaller ones. They especially value the outer edge<sup>1</sup> of the whorl or lip, where the color is brilliant, and these they are obliged to cut into twenty-five cent pieces. You will see that the uhllo is cut into pieces of different sizes, and even pieces of the same size vary in value according to their brilliancy. . . . All the money that I have seen was strung on grocery twine, but they often use sinew of various kinds, also the outer bark of a weed called milkweed<sup>2</sup> about here.”<sup>3</sup>

The uhllo necklace has three or four strings of very small glass beads above the shells, forming a band about one quarter of an inch wide, which encircles the neck. . . . A common deep conical basket, of about a bushel and a half capacity, such as the squaws use for carrying their household effects, is worth one and one half or two strings of uhllo, that is, fifteen or twenty dollars.

Another form of money is made from the heavy shells of a bivalve, a ponderous clam (*Pachydesma crassatelloides*) peculiar to the southern coast of California. This is cut into circular pieces of the diameter as shown in the annexed figure (65), the thickness of the pieces varying with the thickness of the shells from which they are made. The larger pieces (Figure 65, 1 and 1 *a*), of the value of twenty-five cents, are cut from the thicker parts of the valves, and the smaller (Figure 65, 2, 2 *a*), of the value of four cents each, from the thinner portions. This money, of which the smaller pieces closely resemble the disk-shaped beads of the natives of the Paumotu Islands in the South Pacific,<sup>4</sup> except in being of twice the diameter and thick-



(Fig. 65.) HAWOCK.

<sup>1</sup> Columella.

<sup>2</sup> Asclepias.

<sup>3</sup> Placer County, Cal.

<sup>4</sup> The Paumotus are in about longitude 130° W. and latitude 23° S. The pieces made by these islanders are of about one half the diameter and one half the thickness of Figure 5; they are made of *Oliva carnea*, and it must require great labor, as these transverse sections are formed by grinding off the small upper whorls of the apex, and also nearly the entire body whorl, until a disk is obtained of an average thickness of only one twelfth of an inch; these are strung alternately with thinner disks of the same diameter, made of the inner hard shell of the cocoanut, forming a neat necklace, with a pleasing contrast of black and white.

ness, is strung upon strings the same as beads in a necklace, for which purpose it is also used. Figure 5 is the same in form and of about the size of the pieces made from *Saxidomus gracilis* (*S. aratus*), according to Yates, and in use "among the Indians of Lake County. Eighty of these disks are valued at one dollar."

This money, which is called *hawock*, according to Mr. Powers, is universal throughout Middle and Southern California, though different tribes call it by different names and attach different values to it.

"Sometimes disks of hawock are made two inches in diameter and half an inch thick, which are rated at one dollar a piece, but such large pieces are seldom seen."

"The Bear River Indians (Neeshenams) are the only ones I have seen who count it by the single piece, the others rate it by the foot or yard. . . . It is sometimes strung upon a string many yards long, in hundreds of pieces, and doubled into lengths of about a yard. The Wi-Lackees make the buttons thin, then every tenth one thicker, so that it looks like a Catholic rosary, and their name for it is *tocalli*."

In a photograph of a young woman of the Bear River Indians, named Válputteh, received from Mr. Powers, her person is adorned with a necklace of hawock which, it is stated, is ten yards long, requiring to be wound several times about her neck, and consisting of about 1160 pieces, valued at \$232. Another of the same tribe, Pedah or Captain Tom, has an inventory of money and ornaments made of the uhllo (*Haliotis*), hawock (*Pachydesma*), and colcol (*Olivella*), of the total value of \$479. The uhllo, however, seems to be the most highly prized, and in various ways is wrought into gorgets, girdles, and head-dresses, as the hawock and colcol is principally used for necklaces. Gorgets of *Haliotis* are especially valued, as they require a large and fine shell for this purpose.

Upon reviewing the present and my previous papers, it will be observed that the species of shells named in the following table have been or are now used as money by barbarous tribes on this continent and in other parts of the world.

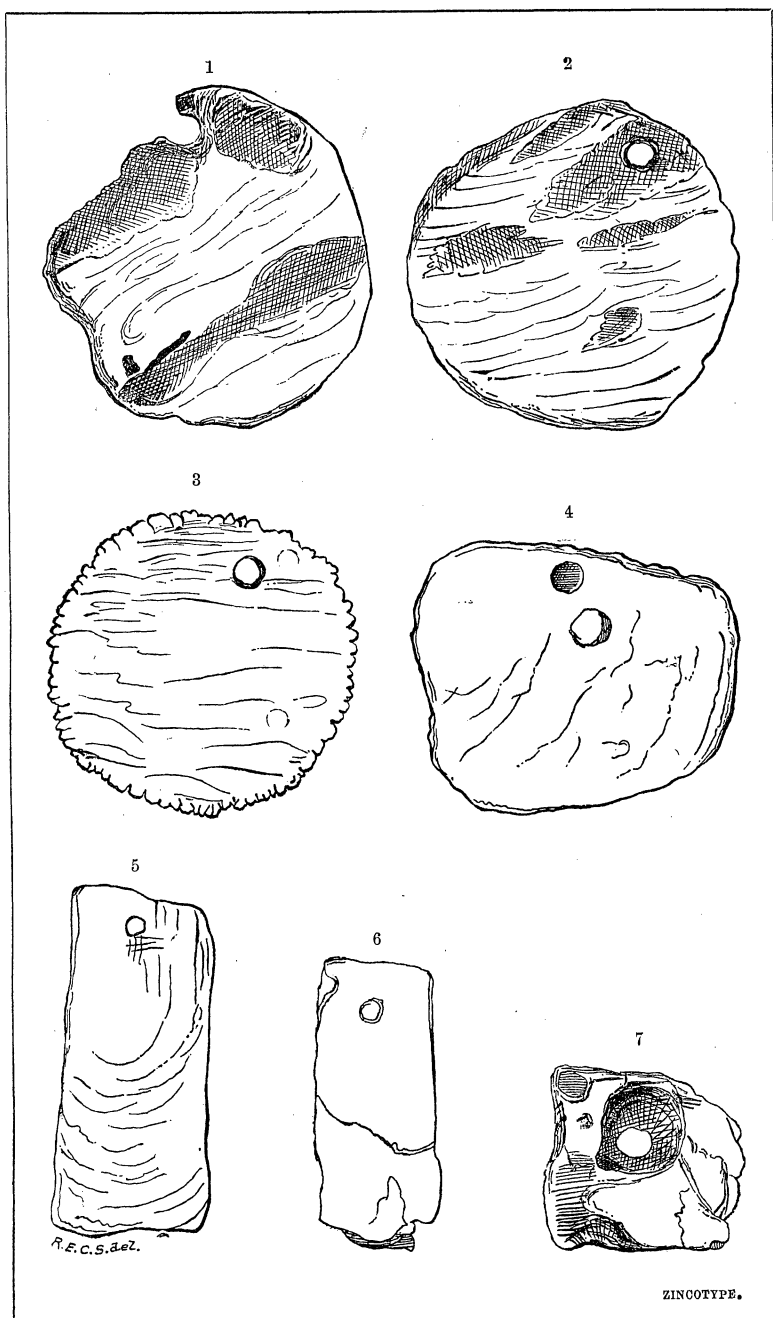


PLATE II. ABORIGINAL SHELL MONEY.

## NORTH AMERICA. — WEST COAST.

SCIENTIFIC NAME.	POPULAR NAME.	ABORIGINAL NAME OF SHELL.	ABORIGINAL NAME OF MONEY.
<i>Dentalium Indianorum</i> Cpr. = <i>D. pretiosum</i> Sby.....	Tusk or Tooth Shells.....	Alli-co-chick or All-co-cheek of California Indians.....	Hi-qua or Hy-a-qua of Alaskan tribes.
<i>Dentalium entalis</i> L.*.....	Periwinkle.....	Used by California Indians.....	Col-col.
<i>Olivella biplicata</i> Sby.....	Abalone, Aulon, or Aulone.....	Used by California Indians.....	Uhl-lo.
<i>Haliotis rufescens</i> Swainson.....	Keyhole Impet.....	Used by California Indians.....	Unknown.
<i>Fissurella</i> ( <i>Lucapina</i> ) <i>crenulata</i> Sby.....	Clam.....	Used by California Indians.....	Unknown.
<i>Saxidomus aratus</i> Gld. = <i>S. gracilis</i> Gld.....	Clam.....	Used by California Indians.....	Hawcock and Tocalli.
<i>Pachydesma crassatelloides</i> Conr.....	Clam.....		

## NORTH AMERICA. — EAST COAST.

<i>Venus mercenaria</i> L. = <i>Mercenaria violacea</i> Schum.....	Hard Shell Clam or Quahang.....	Poquaunges or Poquahook.....	Black Wampum or Wampampeege.
<i>Pyrida</i> ( <i>Busycon</i> ) <i>carica</i> L.....	Whelk.....	Metanhook.....	White Wampum or Suckanhook.
<i>Pyrida</i> ( <i>Busycon</i> ) <i>canaliculatum</i> L.....	Whelk.....	Metanhook.....	White Wampum or Suckanhook.
<i>Buccinum undatum</i> L.....	Whelk.....	Metanhook.....	White Wampum or Suckanhook.

## INDO-PACIFIC AND AFRICAN REGIONS.

<i>Cyprea moneta</i> L.†.....	Guinea money and Prop Shell.....	Unknown.....	Unknown.
<i>Cyprea annulus</i> L.‡.....	Ringed cowry.....	Unknown.....	Unknown.
<i>Littorina obesa</i> Sby.....	Unknown.....	Unknown.....	Unknown.
<i>Nerita polita</i> L. (banded var.).....	Unknown.....	Unknown.....	Unknown.
Unknown species.....	Used in Soudan.....	Oudias or Woodahs.....	Unknown.

\* Imported from Europe for the Indian traffic, by the fur-traders of the North.

† Imported by the Europeans from the Maldiv Islands, for the African trade. Also in use in India in the sixth and seventh centuries, and since.

‡ Found by Layard, in the ruins of Nimroud.